

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

TRANSLATION

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

| | | |
|--|---|---|
| <p>To:</p> | | <p>Date of mailing (day/month/year)</p> |
| <p>Applicant's or agent's file reference F046WO</p> | | <p>FOR FURTHER ACTION See paragraph 2 below</p> |
| <p>International application No. PCT/JP2005/004291</p> | <p>International filing date (day/month/year) 11.03.2005</p> | <p>Priority date (day/month/year) 26.04.2004</p> |
| <p>International Patent Classification (IPC) or both national classification and IPC</p> | | |
| <p>Applicant KOA GLASS CO., LTD</p> | | |

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|---|--------------|--|-----------|----------------------|--------------------------|------------|----------|--------------------------|-------------|--|--------------------------|------------|----------------------------|-------------------------------------|-----------|--|--------------------------|------------|-------------------------|--------------------------|-------------|--|--------------------------|--------------|---|
| <p>1. This opinion contains indications relating to the following items:</p> <table style="width: 100%;"> <tr> <td style="width: 5%;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td>Basis of the opinion</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> | | <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion | <input type="checkbox"/> | Box No. II | Priority | <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | <input type="checkbox"/> | Box No. IV | Lack of unity of invention | <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | <input type="checkbox"/> | Box No. VI | Certain documents cited | <input type="checkbox"/> | Box No. VII | Certain defects in the international application | <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. II | Priority | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention | | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. VI | Certain documents cited | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application | | | | | | | | | | | | | | | | | | | | | | | |
| <p>2. FURTHER ACTION</p> <p>If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.</p> <p>If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.</p> <p>For further options, see Form PCT/ISA/220.</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3. For further details, see notes to Form PCT/ISA/220.</p> | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|---|---------------------------|
| <p>Name and mailing address of the ISA/JP</p> | <p>Authorized officer</p> |
| <p>Facsimile No.</p> | <p>Telephone No.</p> |

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/004291

Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐

This opinion has been established on the basis of a translation from the original language into the following language

_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

- a. type of material

☐

a sequence listing

☐

table(s) related to the sequence listing

- b. format of material

☐

in written format

☐

in computer readable form

- c. time of filing/furnishing

☐

contained in the international application as filed.

☐

filed together with the international application in computer readable form.

☐

furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/004291

| | | | |
|--|---|------|-----|
| Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | |
| 1. Statement | | | |
| Novelty (N) | Claims | 1-10 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | | YES |
| | Claims | 1-10 | NO |
| Industrial applicability (IA) | Claims | 1-10 | YES |
| | Claims | | NO |
| 2. Citations and explanations: | | | |
| <p>Document 1: JP 56-9368 A (Sanyo Vacuum Industries Co., Ltd.), 30 January 1981, claims 1 and 2; page 1, left column, line 18 to page 1, right column, line 2; page 2, upper right column, line 20 to page 2, lower right column, line 6; Fig. 2</p> <p>Document 2: JP 10-203848 A (Toshiba Glass Kabushiki Kaisha), 04 August 1998, paragraphs 0002, 0004</p> <p>Document 3: JP 2000-185945 A (Central Glass Co., Ltd.), 04 July 2000, claims 3 and 4; paragraphs 0028, 0029, 0038-0042; Figs. 8 and 9</p> <p>Document 4: JP 2001-180983 A (Central Glass Co., Ltd.), 03 July 2001, claim 1, paragraph 0021</p> <p>Document 5: WO 97/00134 A1 (Nippon Soda Co., Ltd.), 03 January 1997, claims 1, 3, 4, 9, 16; page 3, lines 15-19; page 10, lines 11-20; Fig. 1</p> | | | |
| <p>Claim 1</p> <p>The invention of claim 1 does not involve an inventive step on account of documents 1 and 2 cited in the ISR.</p> <p>Document 1 describes a decorative glass vessel in which an $\text{In}_2\text{O}_3\text{-SnO}_2$ film, noble metal film of Au, Pt, etc., and $\text{In}_2\text{O}_3\text{-SnO}_2$ film are sequentially formed on the surface of the glass vessel by sputtering. That is, it describes a colored glass vessel provided with a multilayer film consisting of a plurality of vapor deposited films of different substances on the surface of a glass vessel (claims 1, 2; page 1, left column, line 18 to page 1, right column, line 2; page 2, upper right column, line 20 to page 2, lower right column, line 6; Fig. 2).</p> <p>On the other hand, as described in paragraphs 0002 and 0004 of document 2, the method of coloring a glass surface by forming on the glass surface a multilayer film consisting of a thin film with a high refractive index and a thin film with a low refractive index through physical vapor deposition is well-known art. This coloring method appears to be the same as the multicolor development method of the invention of claim 1 of this application. Therefore the colored glass described in document 1 is multicolor development glass.</p> <p>Thus applying the known coloring method described in document 2 and creating a development glass vessel would be easy for a person skilled in the art.</p> | | | |

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V.2

Claim 2

The invention of claim 2 does not involve an inventive step on account of documents 1 and 2.

The matter of what extent to make the difference in refractive indices in a vapor deposited film of two types – a thin film with a high refractive index and a thin film with a low refractive index – is a matter that can be appropriately decided by a person skilled in the art based on adjusting the color that is developed, etc.

Claims 3, 4

The inventions of claims 3 and 4 do not involve an inventive step on account of documents 1 and 2 and documents 3 and 4 cited in the ISR.

Document 3 describes producing an antiglare glass by alternately forming two types of film – TiO_2 and SiO_2 – on a transparent glass substrate (claims 3, 4; paragraphs 0028, 0029, 0038-0042; Figs. 8, 9). Since TiO_2 and SiO_2 have different refractive indices, it appears this is multicolor development glass.

Also, document 4 describes glass covered with a hydrophilic film; an underlayer film of SiO_2 is formed on the glass surface, and an upper layer film consisting of TiO_2 and SiO_2 is formed thereon (claim 1). It also describes adhesion between the upper layer film and the glass can be increased by forming the SiO_2 layer on the glass surface (paragraph 0021).

Thus the inventions of documents 1-4 share the art of forming a thin film on a glass surface. Therefore alternately forming two types of film – TiO_2 and SiO_2 – on the surface of a glass vessel, and providing an SiO_2 film between the surface of the glass vessel and the TiO_2 film in order to increase adhesion between the glass and film would be easy for a person skilled in the art.

Claim 5

The invention of claim 5 does not involve an inventive step on account of documents 1-4.

Examples 3-5 in document 3 describe using TiO_2 films with thickness 100 nm, 102 nm, and 116 nm and SiO_2 films with thickness 82 nm, 84 nm, and 95 nm (paragraphs 0038-0042). The matter of how thick to make a plurality of vapor deposited films is a matter that can be appropriately decided by a person skilled in the art based on adjustment of the developed color, film durability, etc.

Claim 6

The invention of claim 6 does not involve an inventive step on account of documents 1-4 and document 5 cited in the ISR.

Document 5 describes providing a polysiloxane resin, etc. when forming an optical catalyst layer such as TiO_2 , etc. on transparent glass in order to increase adhesion between the glass and the optical catalyst layer (claims 1, 3, 4, 9, 16; page 3, lines 15-19; page 10, lines 11-20; Fig. 1).

Thus the inventions of documents 1-5 share the art of forming a thin film on a glass surface. Therefore forming a polysiloxane coating film that interacts with a vapor deposited film between glass and a vapor deposited film in order to increase adhesion between glass and film and to increase adhesion between multilayer films would be easy for a person skilled in the art.

Supplemental Box

V

Claim 7

The invention of claim 7 does not involve an inventive step on account of documents 1 and 2.

Document 1 describes a decorative glass vessel in which an In_2O_3 - SnO_2 film, noble metal film of Au, Pt, etc., and In_2O_3 - SnO_2 film are sequentially formed on the surface of the glass vessel by sputtering. That is, it describes a colored glass vessel provided with a multilayer film consisting of a plurality of vapor deposited films of different substances on the surface of a glass vessel (claims 1, 2; page 1, left column, line 18 to page 1, right column, line 2; page 2, upper right column, line 20 to page 2, lower right column, line 6; Fig. 2).

On the other hand, as described in paragraphs 0002 and 0004 of document 2, the method of coloring a glass surface by forming on the glass surface a multilayer film consisting of a thin film with a high refractive index and a thin film with a low refractive index through physical vapor deposition is well-known art. This coloring method appears to be the same as the multicolor development method of the invention of claim 1 of this application. Therefore the colored glass described in document 1 is multicolor development glass.

Thus preparing a glass vessel and applying the well-known coloring method described in document 2 and manufacturing a development glass vessel would easily be carried out by a person skilled in the art.

Claim 8

The invention of claim 8 does not involve an inventive step on account of documents 1 and 2.

The matter of what extent to make the difference in refractive indices in a vapor deposited film of two types – a thin film with a high refractive index and a thin film with a low refractive index – is a matter that can be appropriately decided by a person skilled in the art based on adjusting the color that is developed, etc.

Claim 9

The invention of claim 9 does not involve an inventive step on account of documents 1, 2, and 5.

Document 5 describes providing a polysiloxane resin, etc. when forming an optical catalyst layer such as TiO_2 , etc. on transparent glass in order to increase adhesion between the glass and the optical catalyst layer (claims 1, 3, 4, 9, 16; page 3, lines 15-19; page 10, lines 11-20; Fig. 1).

Thus the inventions of documents 1, 2, and 5 share the art of forming a thin film on a glass surface. Therefore forming a polysiloxane coating film that interacts with a vapor deposited film between glass and a vapor deposited film in order to increase adhesion between glass and film and to increase adhesion between multilayer films would be easy for a person skilled in the art.

Claim 10

The invention of claim 10 does not involve an inventive step on account of documents 1, 2, and 5.

When a glass surface is curved, as in the case of a glass bottle, etc., forming a multilayer film while rotating the glass vessel and uniformly forming a vapor deposited film on the curved surface would easily be easy for a person skilled in the art.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

| | | |
|--|--|--|
| Applicant's or agent's file reference F046WO | FOR FURTHER ACTION | See item 4 below |
| International application No. PCT/JP2005/004291 | International filing date (<i>day/month/year</i>) 11 March 2005 (11.03.2005) | Priority date (<i>day/month/year</i>) 26 April 2004 (26.04.2004) |
| International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237 | | |
| Applicant KOA GLASS CO., LTD | | |

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|-------------------------------------|--|---|-----------|---------------------|--------------------------|------------|----------|--------------------------|-------------|--|--------------------------|------------|----------------------------|-------------------------------------|-----------|---|--------------------------|------------|-------------------------|--------------------------|-------------|--|--------------------------|--------------|---|
| 1. | This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a). | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | This REPORT consists of a total of 6 sheets, including this cover sheet. In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead. | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. | <p>This report contains indications relating to the following items:</p> <table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> | <input checked="" type="checkbox"/> | Box No. I | Basis of the report | <input type="checkbox"/> | Box No. II | Priority | <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | <input type="checkbox"/> | Box No. IV | Lack of unity of invention | <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | <input type="checkbox"/> | Box No. VI | Certain documents cited | <input type="checkbox"/> | Box No. VII | Certain defects in the international application | <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. II | Priority | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention | | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. VI | Certain documents cited | | | | | | | | | | | | | | | | | | | | | | | |
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| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application | | | | | | | | | | | | | | | | | | | | | | | |
| 4. | The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2). | | | | | | | | | | | | | | | | | | | | | | | | |

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| <p style="text-align: center;">The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 338 82 70</p> | <p>Date of issuance of this report 01 November 2006 (01.11.2006)</p> <p>Authorized officer Masashi Honda</p> <p>e-mail: pt08@wipo.int</p> |
|--|--|

特許協力条約

発信人 日本国特許庁 (国際調査機関)

REC'D 20 MAY 2005

WIPO

PCT

代理人

江森 健二

様

あて名

〒160-0022

日本国東京都新宿区新宿 1-11-3 エクセル新宿
御苑ビル 5F

PCT
国際調査機関の見解書
(法施行規則第40条の2)
[PCT規則43の2.1]

発送日
(日.月.年)

17.05.2005

出願人又は代理人

の書類記号 F046W0

今後の手続きについては、下記2を参照すること。

国際出願番号

PCT/J P 2005/004291

国際出願日

(日.月.年) 11.03.2005

優先日

(日.月.年) 26.04.2004

国際特許分類 (IPC) Int.Cl.⁷ C03C17/36, B65D23/02; 23/08, C03C17/38

出願人 (氏名又は名称)

興亜硝子株式会社

1. この見解書は次の内容を含む。

- ☒ 第I欄 見解の基礎
- ☐ 第II欄 優先権
- ☐ 第III欄 新規性、進歩性又は産業上の利用可能性についての見解の不作成
- ☐ 第IV欄 発明の単一性の欠如
- ☒ 第V欄 PCT規則43の2.1(a)(i)に規定する新規性、進歩性又は産業上の利用可能性についての見解、それを裏付けるための文献及び説明
- ☐ 第VI欄 ある種の引用文献
- ☐ 第VII欄 国際出願の不備
- ☐ 第VIII欄 国際出願に対する意見

2. 今後の手続き

国際予備審査の請求がされた場合は、出願人がこの国際調査機関とは異なる国際予備審査機関を選択し、かつ、その国際予備審査機関がPCT規66.1の2(b)の規定に基づいて国際調査機関の見解書を国際予備審査機関の見解書とみなさない旨を国際事務局に通知していた場合を除いて、この見解書は国際予備審査機関の最初の見解書とみなされる。

この見解書が上記のように国際予備審査機関の見解書とみなされる場合、様式PCT/ISA/220を送付した日から3月又は優先日から22月のうちいずれか遅く満了する期限が経過するまでに、出願人は国際予備審査機関に、適当な場合は補正書とともに、答弁書を提出することができる。

さらなる選択肢は、様式PCT/ISA/220を参照すること。

3. さらなる詳細は、様式PCT/ISA/220の備考を参照すること。

見解書を作成した日

25.04.2005

名称及びあて先

日本国特許庁 (ISA/J P)

郵便番号100-8915

東京都千代田区霞が関三丁目4番3号

特許庁審査官 (権限のある職員)

新居田 知生

電話番号 03-3581-1101 内線 3465

4 T

3386

様式PCT/ISA/237 (表紙) (2004年1月)

第 I 欄 見解の基礎

1. この見解書は、下記に示す場合を除くほか、国際出願の言語を基礎として作成された。

- ☐ この見解書は、_____ 語による翻訳文を基礎として作成した。
それは国際調査のために提出された PCT 規則 12.3 及び 23.1(b) にいう翻訳文の言語である。

2. この国際出願で開示されかつ請求の範囲に係る発明に不可欠なヌクレオチド又はアミノ酸配列に関して、以下に基づき見解書を作成した。

- a. タイプ ☐ 配列表
☐ 配列表に関連するテーブル
- b. フォーマット ☐ 書面
☐ コンピュータ読み取り可能な形式
- c. 提出時期 ☐ 出願時の国際出願に含まれる
☐ この国際出願と共にコンピュータ読み取り可能な形式により提出された
☐ 出願後に、調査のために、この国際調査機関に提出された

3. ☐ さらに、配列表又は配列表に関連するテーブルを提出した場合に、出願後に提出した配列若しくは追加して提出した配列が出願時に提出した配列と同一である旨、又は、出願時の開示を超える事項を含まない旨の陳述書の提出があった。

4. 補足意見：

第V欄 新規性、進歩性又は産業上の利用可能性についてのPCT規則43の2.1(a)(i)に定める見解、それを裏付ける文献及び説明

1. 見解

| | | | |
|----------------|-------|------|---|
| 新規性 (N) | 請求の範囲 | 1-10 | 有 |
| | 請求の範囲 | | 無 |
| 進歩性 (IS) | 請求の範囲 | | 有 |
| | 請求の範囲 | 1-10 | 無 |
| 産業上の利用可能性 (IA) | 請求の範囲 | 1-10 | 有 |
| | 請求の範囲 | | 無 |

2. 文献及び説明

文献1 : JP 56-9368 A (三容真空工業株式会社) 1981.01.30, 請求項1, 2, 第1頁左欄第18行-同頁右欄第2行, 第2頁右上欄第20行-同頁右下欄第6行, 第2図

文献2 : JP 10-203848 A (東芝硝子株式会社) 1998.08.04, 段落【0002】 , 【0004】

文献3 : JP 2000-185945 A (セントラル硝子株式会社) 2000.07.04, 請求項3, 4, 段落【0028】 , 【0029】 , 【0038】 - 【0042】 , 図8, 9

文献4 : JP 2001-180983 A (セントラル硝子株式会社) 2001.07.03, 請求項1, 段落【0021】

文献5 : WO 97/00134 A1 (日本曹達株式会社) 1997.01.03, 請求項1, 3, 4, 9, 16, 第3頁第15-19行, 第10頁第11-20行, 第1図

請求の範囲1

請求の範囲1に係る発明は、国際調査報告で引用された文献1及び2により、進歩性を有しない。

文献1には、スパッタリングにより、ガラス容器の表面上に、 $\text{In}_2\text{O}_3-\text{SnO}_2$ 膜、Au、Pt等の貴金属膜、 $\text{In}_2\text{O}_3-\text{SnO}_2$ 膜を順次形成した装飾ガラス容器、すなわち、ガラス容器の表面に物質が異なる複数の蒸着膜からなる多層膜を備える着色ガラス容器が記載されている(請求項1, 2, 第1頁左欄第18行-同頁右欄第2行, 第2頁右上欄第20行-同頁右下欄第6行, 第2図)。

他方、文献2の段落【0002】及び【0004】に記載されているように、物理的蒸着により、高屈折率の薄膜と低屈折率の薄膜との多層膜をガラス表面に形成することにより、ガラス表面を着色する方法は周知の技術であり、この着色方法と本願請求項1に係る発明の多発色方法は同じであると認められるので、文献1に記載の当該着色ガラスは、多発色ガラスである。

してみると、ガラス容器に、文献2に記載の周知の着色方法を適用して、多発色ガラス容器とすることは、当業者にとって容易である。

補充欄

いずれかの欄の大きさが足りない場合

第 V.2 欄の続き

請求の範囲 2

請求の範囲 2に係る発明は、文献 1 及び 2 により、進歩性を有しない。

高屈折率の薄膜及び低屈折率の薄膜の二種類の蒸着膜の屈折率の差をどの程度にするかは、発色する色調等を考慮して、当業者が適宜決定し得るものである。

請求の範囲 3, 4

請求の範囲 3, 4に係る発明は、文献 1, 2 及び国際調査報告で引用された文献 3, 4 により、進歩性を有しない。

文献 3 には、透明ガラス基板上に TiO_2 と SiO_2 の 2 種類の膜を交互に形成することにより、防眩ガラスが得られる旨が記載されており（請求項 3, 4, 段落【0028】、【0029】、【0038】 - 【0042】、図 8, 9）、 TiO_2 と SiO_2 とは屈折率が異なるから、多発色ガラスとなっていると認められる。

また、文献 4 には、ガラス表面に SiO_2 の下層膜を形成し、その上に TiO_2 と SiO_2 とからなる上層膜を形成した親水膜被覆ガラスが記載されており（請求項 1）、ガラス表面に SiO_2 膜を形成することにより上層膜とガラスとの密着性を向上させることができる旨が記載されている（段落【0021】）。

してみると、文献 1 - 4 に係る発明は、ガラス表面に薄膜を形成する技術として共通するものであるから、ガラス容器の表面に TiO_2 と SiO_2 の 2 種類の膜を交互に形成し、ガラスと膜の密着性を向上させるために、ガラス容器の表面と TiO_2 膜との間に SiO_2 膜を設けることは、当業者にとって容易である。

請求の範囲 5

請求の範囲 5に係る発明は、文献 1 - 4 により、進歩性を有しない。

文献 3 の実施例 3 - 5 には、厚さ 100 nm、102 nm、116 nm の TiO_2 膜、厚さ 82 nm、84 nm、95 nm の SiO_2 膜を用いる旨が記載されており（段落【0038】 - 【0042】）、複数の蒸着膜の厚さをどの程度にするかは、発色する色調、膜の耐久性等を考慮して、当業者が適宜決定し得るものである。

請求の範囲 6

請求の範囲 6に係る発明は、文献 1 - 4 及び国際調査報告で引用された文献 5 により、進歩性を有しない。

文献 5 には、透明ガラス上に TiO_2 等の光触媒層を形成する場合に、ガラスと光触媒層との密着性を向上させるために、ポリシロキサン系の樹脂等を設ける旨が記載されている（請求項 1, 3, 4, 9, 16, 第 3 頁第 15-19 行、第 10 頁第 11-20 行、第 1 図）。

そして、文献 1 - 5 に係る発明は、ガラス表面に薄膜を形成する技術として共通するものであるから、ガラスと膜の密着性、多層膜間の密着性を向上させるために、ガラスと蒸着膜との間、蒸着膜相互間にポリシロキサン系塗膜を形成することは、当業者にとって容易である。

補充欄

いずれかの欄の大きさが足りない場合

第 V.2 欄の続き

請求の範囲 7

請求の範囲 7に係る発明は、文献 1 及び 2 により、進歩性を有しない。

文献 1 には、スパッタリングにより、ガラス容器の表面上に、 $\text{In}_2\text{O}_3\text{--SnO}_2$ 膜、 Au 、 Pt 等の貴金属膜、 $\text{In}_2\text{O}_3\text{--SnO}_2$ 膜を順次形成した装飾ガラス容器、すなわち、ガラス容器の表面に物質が異なる複数の蒸着膜からなる多層膜を備える着色ガラス容器が記載されている（請求項 1, 2, 第 1 頁左欄第 18 行-同頁右欄第 2 行, 第 2 頁右上欄第 20 行-同頁右下欄第 6 行, 第 2 図）。

他方、文献 2 の段落【0002】及び【0004】に記載されているように、物理的蒸着により、高屈折率の薄膜と低屈折率の薄膜との多層膜をガラス表面に形成することにより、ガラス表面を着色する方法は周知の技術であり、この着色方法と本願請求項 1 に係る発明の多発色の方法は同じであると認められるので、文献 1 に記載の当該着色ガラスは、多発色ガラスである。

してみると、ガラス容器を準備し、これに文献 2 に記載の周知の着色方法を適用して、多発色ガラス容器を製造することは、当業者にとって容易である。

請求の範囲 8

請求の範囲 8に係る発明は、文献 1 及び 2 により、進歩性を有しない。

高屈折率の薄膜及び低屈折率の薄膜の二種類の蒸着膜の屈折率の差をどの程度にするかは、発色する色調等を考慮して、当業者が適宜決定し得るものである。

請求の範囲 9

請求の範囲 9に係る発明は、文献 1, 2 及び 5 により、進歩性を有しない。

文献 5 には、透明ガラス上に TiO_2 等の光触媒層を形成する場合に、ガラスと光触媒層との密着性を向上させるために、ポリシロキサン系の樹脂等を設ける旨が記載されている（請求項 1, 3, 4, 9, 16, 第 3 頁第 15-19 行, 第 10 頁第 11-20 行, 第 1 図）。

そして、文献 1, 2 及び 5 に係る発明は、ガラス表面に薄膜を形成する技術として共通するものであるから、ガラスと膜の密着性、多層膜間の密着性を向上させるために、ガラスと蒸着膜との間、蒸着膜相互間にポリシロキサン系塗膜を形成することは、当業者にとって容易である。

請求の範囲 10

請求の範囲 10に係る発明は、文献 1, 2 及び 5 により、進歩性を有しない。

ガラスビン等のガラス表面が曲面である場合に、ガラス容器を回転させながら多層膜を形成して、曲面上に均一に蒸着膜を形成することは、当業者にとって容易である。

PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference

F046WO

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2005/004291

International filing date (day/month/year)

11.03.2005

Priority date (day/month/year)

26.04.2004

International Patent Classification (IPC) or both national classification and IPC

Applicant

KOA GLASS CO., LTD

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/004291

Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐

This opinion has been established on the basis of a translation from the original language into the following language

_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

- a. type of material

☐

a sequence listing

☐

table(s) related to the sequence listing

- b. format of material

☐

in written format

☐

in computer readable form

- c. time of filing/furnishing

☐

contained in the international application as filed.

☐

filed together with the international application in computer readable form.

☐

furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/004291

| | | | |
|--|---|------|-----|
| Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | |
| 1. Statement | | | |
| Novelty (N) | Claims | 1-10 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | | YES |
| | Claims | 1-10 | NO |
| Industrial applicability (IA) | Claims | 1-10 | YES |
| | Claims | | NO |
| 2. Citations and explanations: | | | |
| <p>Document 1: JP 56-9368 A (Sanyo Vacuum Industries Co., Ltd.), 30 January 1981, claims 1 and 2; page 1, left column, line 18 to page 1, right column, line 2; page 2, upper right column, line 20 to page 2, lower right column, line 6; Fig. 2</p> <p>Document 2: JP 10-203848 A (Toshiba Glass Kabushiki Kaisha), 04 August 1998, paragraphs 0002, 0004</p> <p>Document 3: JP 2000-185945 A (Central Glass Co., Ltd.), 04 July 2000, claims 3 and 4; paragraphs 0028, 0029, 0038-0042; Figs. 8 and 9</p> <p>Document 4: JP 2001-180983 A (Central Glass Co., Ltd.), 03 July 2001, claim 1, paragraph 0021</p> <p>Document 5: WO 97/00134 A1 (Nippon Soda Co., Ltd.), 03 January 1997, claims 1, 3, 4, 9, 16; page 3, lines 15-19; page 10, lines 11-20; Fig. 1</p> | | | |
| <p>Claim 1</p> <p>The invention of claim 1 does not involve an inventive step on account of documents 1 and 2 cited in the ISR.</p> <p>Document 1 describes a decorative glass vessel in which an $\text{In}_2\text{O}_3\text{-SnO}_2$ film, noble metal film of Au, Pt, etc., and $\text{In}_2\text{O}_3\text{-SnO}_2$ film are sequentially formed on the surface of the glass vessel by sputtering. That is, it describes a colored glass vessel provided with a multilayer film consisting of a plurality of vapor deposited films of different substances on the surface of a glass vessel (claims 1, 2; page 1, left column, line 18 to page 1, right column, line 2; page 2, upper right column, line 20 to page 2, lower right column, line 6; Fig. 2).</p> <p>On the other hand, as described in paragraphs 0002 and 0004 of document 2, the method of coloring a glass surface by forming on the glass surface a multilayer film consisting of a thin film with a high refractive index and a thin film with a low refractive index through physical vapor deposition is well-known art. This coloring method appears to be the same as the multicolor development method of the invention of claim 1 of this application. Therefore the colored glass described in document 1 is multicolor development glass.</p> <p>Thus applying the known coloring method described in document 2 and creating a development glass vessel would be easy for a person skilled in the art.</p> | | | |

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V.2

Claim 2

The invention of claim 2 does not involve an inventive step on account of documents 1 and 2.

The matter of what extent to make the difference in refractive indices in a vapor deposited film of two types – a thin film with a high refractive index and a thin film with a low refractive index – is a matter that can be appropriately decided by a person skilled in the art based on adjusting the color that is developed, etc.

Claims 3, 4

The inventions of claims 3 and 4 do not involve an inventive step on account of documents 1 and 2 and documents 3 and 4 cited in the ISR.

Document 3 describes producing an antiglare glass by alternately forming two types of film – TiO_2 and SiO_2 – on a transparent glass substrate (claims 3, 4; paragraphs 0028, 0029, 0038-0042; Figs. 8, 9). Since TiO_2 and SiO_2 have different refractive indices, it appears this is multicolor development glass.

Also, document 4 describes glass covered with a hydrophilic film; an underlayer film of SiO_2 is formed on the glass surface, and an upper layer film consisting of TiO_2 and SiO_2 is formed thereon (claim 1). It also describes adhesion between the upper layer film and the glass can be increased by forming the SiO_2 layer on the glass surface (paragraph 0021).

Thus the inventions of documents 1-4 share the art of forming a thin film on a glass surface. Therefore alternately forming two types of film – TiO_2 and SiO_2 – on the surface of a glass vessel, and providing an SiO_2 film between the surface of the glass vessel and the TiO_2 film in order to increase adhesion between the glass and film would be easy for a person skilled in the art.

Claim 5

The invention of claim 5 does not involve an inventive step on account of documents 1-4.

Examples 3-5 in document 3 describe using TiO_2 films with thickness 100 nm, 102 nm, and 116 nm and SiO_2 films with thickness 82 nm, 84 nm, and 95 nm (paragraphs 0038-0042). The matter of how thick to make a plurality of vapor deposited films is a matter that can be appropriately decided by a person skilled in the art based on adjustment of the developed color, film durability, etc.

Claim 6

The invention of claim 6 does not involve an inventive step on account of documents 1-4 and document 5 cited in the ISR.

Document 5 describes providing a polysiloxane resin, etc. when forming an optical catalyst layer such as TiO_2 , etc. on transparent glass in order to increase adhesion between the glass and the optical catalyst layer (claims 1, 3, 4, 9, 16; page 3, lines 15-19; page 10, lines 11-20; Fig. 1).

Thus the inventions of documents 1-5 share the art of forming a thin film on a glass surface. Therefore forming a polysiloxane coating film that interacts with a vapor deposited film between glass and a vapor deposited film in order to increase adhesion between glass and film and to increase adhesion between multilayer films would be easy for a person skilled in the art.

Supplemental Box

V

Claim 7

The invention of claim 7 does not involve an inventive step on account of documents 1 and 2.

Document 1 describes a decorative glass vessel in which an In_2O_3 - SnO_2 film, noble metal film of Au, Pt, etc., and In_2O_3 - SnO_2 film are sequentially formed on the surface of the glass vessel by sputtering. That is, it describes a colored glass vessel provided with a multilayer film consisting of a plurality of vapor deposited films of different substances on the surface of a glass vessel (claims 1, 2; page 1, left column, line 18 to page 1, right column, line 2; page 2, upper right column, line 20 to page 2, lower right column, line 6; Fig. 2).

On the other hand, as described in paragraphs 0002 and 0004 of document 2, the method of coloring a glass surface by forming on the glass surface a multilayer film consisting of a thin film with a high refractive index and a thin film with a low refractive index through physical vapor deposition is well-known art. This coloring method appears to be the same as the multicolor development method of the invention of claim 1 of this application. Therefore the colored glass described in document 1 is multicolor development glass.

Thus preparing a glass vessel and applying the well-known coloring method described in document 2 and manufacturing a development glass vessel would easily be carried out by a person skilled in the art.

Claim 8

The invention of claim 8 does not involve an inventive step on account of documents 1 and 2.

The matter of what extent to make the difference in refractive indices in a vapor deposited film of two types – a thin film with a high refractive index and a thin film with a low refractive index – is a matter that can be appropriately decided by a person skilled in the art based on adjusting the color that is developed, etc.

Claim 9

The invention of claim 9 does not involve an inventive step on account of documents 1, 2, and 5.

Document 5 describes providing a polysiloxane resin, etc. when forming an optical catalyst layer such as TiO_2 , etc. on transparent glass in order to increase adhesion between the glass and the optical catalyst layer (claims 1, 3, 4, 9, 16; page 3, lines 15-19; page 10, lines 11-20; Fig. 1).

Thus the inventions of documents 1, 2, and 5 share the art of forming a thin film on a glass surface. Therefore forming a polysiloxane coating film that interacts with a vapor deposited film between glass and a vapor deposited film in order to increase adhesion between glass and film and to increase adhesion between multilayer films would be easy for a person skilled in the art.

Claim 10

The invention of claim 10 does not involve an inventive step on account of documents 1, 2, and 5.

When a glass surface is curved, as in the case of a glass bottle, etc., forming a multilayer film while rotating the glass vessel and uniformly forming a vapor deposited film on the curved surface would easily be easy for a person skilled in the art.

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

TRANSLATION

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

| | | |
|--|---|---|
| <p>To:</p> | | <p>Date of mailing (day/month/year).</p> |
| <p>Applicant's or agent's file reference F046WO</p> | | <p>FOR FURTHER ACTION See paragraph 2 below</p> |
| <p>International application No. PCT/JP2005/004291</p> | <p>International filing date (day/month/year) 11.03.2005</p> | <p>Priority date (day/month/year) 26.04.2004</p> |
| <p>International Patent Classification (IPC) or both national classification and IPC</p> | | |
| <p>Applicant KOA GLASS CO., LTD</p> | | |

| | |
|---|---|
| <p>1. This opinion contains indications relating to the following items:</p> | |
| <input checked="" type="checkbox"/> | <p>Box No. I Basis of the opinion</p> |
| <input type="checkbox"/> | <p>Box No. II Priority</p> |
| <input type="checkbox"/> | <p>Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> |
| <input type="checkbox"/> | <p>Box No. IV Lack of unity of invention</p> |
| <input checked="" type="checkbox"/> | <p>Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> |
| <input type="checkbox"/> | <p>Box No. VI Certain documents cited</p> |
| <input type="checkbox"/> | <p>Box No. VII Certain defects in the international application</p> |
| <input type="checkbox"/> | <p>Box No. VIII Certain observations on the international application</p> |
| <p>2. FURTHER ACTION</p> <p>If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.</p> <p>If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.</p> <p>For further options, see Form PCT/ISA/220.</p> | |
| <p>3. For further details, see notes to Form PCT/ISA/220.</p> | |

| | |
|---|---------------------------|
| <p>Name and mailing address of the ISA/JP</p> | <p>Authorized officer</p> |
| <p>Facsimile No.</p> | <p>Telephone No.</p> |

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/004291

Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐

This opinion has been established on the basis of a translation from the original language into the following language

_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☐

in written format

☐

in computer readable form

c. time of filing/furnishing

☐

contained in the international application as filed.

☐

filed together with the international application in computer readable form.

☐

furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2005/004291

| | | | |
|---|---|------|-----|
| Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | |
| 1. Statement | | | |
| Novelty (N) | Claims | 1-10 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | | YES |
| | Claims | 1-10 | NO |
| Industrial applicability (IA) | Claims | 1-10 | YES |
| | Claims | | NO |
| 2. Citations and explanations: | | | |
| <p>Document 1: JP 56-9368 A (Sanyo Vacuum Industries Co., Ltd.), 30 January 1981, claims 1 and 2; page 1, left column, line 18 to page 1, right column, line 2; page 2, upper right column, line 20 to page 2, lower right column, line 6; Fig. 2</p> <p>Document 2: JP 10-203848 A (Toshiba Glass Kabushiki Kaisha), 04 August 1998, paragraphs 0002, 0004</p> <p>Document 3: JP 2000-185945 A (Central Glass Co., Ltd.), 04 July 2000, claims 3 and 4; paragraphs 0028, 0029, 0038-0042; Figs. 8 and 9</p> <p>Document 4: JP 2001-180983 A (Central Glass Co., Ltd.), 03 July 2001, claim 1, paragraph 0021</p> <p>Document 5: WO 97/00134 A1 (Nippon Soda Co., Ltd.), 03 January 1997, claims 1, 3, 4, 9, 16; page 3, lines 15-19; page 10, lines 11-20; Fig. 1</p> | | | |
| <p>Claim 1</p> <p>The invention of claim 1 does not involve an inventive step on account of documents 1 and 2 cited in the ISR.</p> <p>Document 1 describes a decorative glass vessel in which an $\text{In}_2\text{O}_3\text{-SnO}_2$ film, noble metal film of Au, Pt, etc., and $\text{In}_2\text{O}_3\text{-SnO}_2$ film are sequentially formed on the surface of the glass vessel by sputtering. That is, it describes a colored glass vessel provided with a multilayer film consisting of a plurality of vapor deposited films of different substances on the surface of a glass vessel (claims 1, 2; page 1, left column, line 18 to page 1, right column, line 2; page 2, upper right column, line 20 to page 2, lower right column, line 6; Fig. 2).</p> <p>On the other hand, as described in paragraphs 0002 and 0004 of document 2, the method of coloring a glass surface by forming on the glass surface a multilayer film consisting of a thin film with a high refractive index and a thin film with a low refractive index through physical vapor deposition is well-known art. This coloring method appears to be the same as the multicolor development method of the invention of claim 1 of this application. Therefore, the colored glass described in document 1 is multicolor development glass.</p> <p>Thus applying the known coloring method described in document 2 and creating a development glass vessel would be easy for a person skilled in the art.</p> | | | |

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V.2

Claim 2

The invention of claim 2 does not involve an inventive step on account of documents 1 and 2.

The matter of what extent to make the difference in refractive indices in a vapor deposited film of two types – a thin film with a high refractive index and a thin film with a low refractive index – is a matter that can be appropriately decided by a person skilled in the art based on adjusting the color that is developed, etc.

Claims 3, 4

The inventions of claims 3 and 4 do not involve an inventive step on account of documents 1 and 2 and documents 3 and 4 cited in the ISR.

Document 3 describes producing an antiglare glass by alternately forming two types of film – TiO_2 and SiO_2 – on a transparent glass substrate (claims 3, 4; paragraphs 0028, 0029, 0038-0042; Figs. 8, 9). Since TiO_2 and SiO_2 have different refractive indices, it appears this is multicolor development glass.

Also, document 4 describes glass covered with a hydrophilic film; an underlayer film of SiO_2 is formed on the glass surface, and an upper layer film consisting of TiO_2 and SiO_2 is formed thereon (claim 1). It also describes adhesion between the upper layer film and the glass can be increased by forming the SiO_2 layer on the glass surface (paragraph 0021).

Thus the inventions of documents 1-4 share the art of forming a thin film on a glass surface. Therefore alternately forming two types of film – TiO_2 and SiO_2 – on the surface of a glass vessel, and providing an SiO_2 film between the surface of the glass vessel and the TiO_2 film in order to increase adhesion between the glass and film would be easy for a person skilled in the art.

Claim 5

The invention of claim 5 does not involve an inventive step on account of documents 1-4.

Examples 3-5 in document 3 describe using TiO_2 films with thickness 100 nm, 102 nm, and 116 nm and SiO_2 films with thickness 82 nm, 84 nm, and 95 nm (paragraphs 0038-0042). The matter of how thick to make a plurality of vapor deposited films is a matter that can be appropriately decided by a person skilled in the art based on adjustment of the developed color, film durability, etc.

Claim 6

The invention of claim 6 does not involve an inventive step on account of documents 1-4 and document 5 cited in the ISR.

Document 5 describes providing a polysiloxane resin, etc. when forming an optical catalyst layer such as TiO_2 , etc. on transparent glass in order to increase adhesion between the glass and the optical catalyst layer (claims 1, 3, 4, 9, 16; page 3, lines 15-19; page 10, lines 11-20; Fig. 1).

Thus the inventions of documents 1-5 share the art of forming a thin film on a glass surface. Therefore forming a polysiloxane coating film that interacts with a vapor deposited film between glass and a vapor deposited film in order to increase adhesion between glass and film and to increase adhesion between multilayer films would be easy for a person skilled in the art.

Supplemental Box

V

Claim 7

The invention of claim 7 does not involve an inventive step on account of documents 1 and 2.

Document 1 describes a decorative glass vessel in which an In_2O_3 - SnO_2 film, noble metal film of Au, Pt, etc., and In_2O_3 - SnO_2 film are sequentially formed on the surface of the glass vessel by sputtering. That is, it describes a colored glass vessel provided with a multilayer film consisting of a plurality of vapor deposited films of different substances on the surface of a glass vessel (claims 1, 2; page 1, left column, line 18 to page 1, right column, line 2; page 2, upper right column, line 20 to page 2, lower right column, line 6; Fig. 2).

On the other hand, as described in paragraphs 0002 and 0004 of document 2, the method of coloring a glass surface by forming on the glass surface a multilayer film consisting of a thin film with a high refractive index and a thin film with a low refractive index through physical vapor deposition is well-known art. This coloring method appears to be the same as the multicolor development method of the invention of claim 1 of this application. Therefore the colored glass described in document 1 is multicolor development glass.

Thus preparing a glass vessel and applying the well-known coloring method described in document 2 and manufacturing a development glass vessel would easily be carried out by a person skilled in the art.

Claim 8

The invention of claim 8 does not involve an inventive step on account of documents 1 and 2.

The matter of what extent to make the difference in refractive indices in a vapor deposited film of two types – a thin film with a high refractive index and a thin film with a low refractive index – is a matter that can be appropriately decided by a person skilled in the art based on adjusting the color that is developed, etc.

Claim 9

The invention of claim 9 does not involve an inventive step on account of documents 1, 2, and 5.

Document 5 describes providing a polysiloxane resin, etc. when forming an optical catalyst layer such as TiO_2 , etc. on transparent glass in order to increase adhesion between the glass and the optical catalyst layer (claims 1, 3, 4, 9, 16; page 3, lines 15-19; page 10, lines 11-20; Fig. 1).

Thus the inventions of documents 1, 2, and 5 share the art of forming a thin film on a glass surface. Therefore forming a polysiloxane coating film that interacts with a vapor deposited film between glass and a vapor deposited film in order to increase adhesion between glass and film and to increase adhesion between multilayer films would be easy for a person skilled in the art.

Claim 10

The invention of claim 10 does not involve an inventive step on account of documents 1, 2, and 5.

When a glass surface is curved, as in the case of a glass bottle, etc., forming a multilayer film while rotating the glass vessel and uniformly forming a vapor deposited film on the curved surface would easily be easy for a person skilled in the art.

特許協力条約

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REC'D 20 MAY 2005

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PCT
国際調査機関の見解書
(法施行規則第40条の2)
[PCT規則43の2.1]

発送日
(日.月.年)

17.05.2005

出願人又は代理人
の書類記号 F046W0

今後の手続きについては、下記2を参照すること。

国際出願番号
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出願人 (氏名又は名称)
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1. この見解書は次の内容を含む。

- ☒ 第I欄 見解の基礎
- ☐ 第II欄 優先権
- ☐ 第III欄 新規性、進歩性又は産業上の利用可能性についての見解の不作成
- ☐ 第IV欄 発明の単一性の欠如
- ☒ 第V欄 PCT規則43の2.1(a)(i)に規定する新規性、進歩性又は産業上の利用可能性についての見解、それを裏付けるための文献及び説明
- ☐ 第VI欄 ある種の引用文献
- ☐ 第VII欄 国際出願の不備
- ☐ 第VIII欄 国際出願に対する意見

2. 今後の手続き

国際予備審査の請求がされた場合は、出願人がこの国際調査機関とは異なる国際予備審査機関を選択し、かつ、その国際予備審査機関がPCT規66.1の2(b)の規定に基づいて国際調査機関の見解書を国際予備審査機関の見解書とみなさない旨を国際事務局に通知していた場合を除いて、この見解書は国際予備審査機関の最初の見解書とみなされる。

この見解書が上記のように国際予備審査機関の見解書とみなされる場合、様式PCT/ISA/220を送付した日から3月又は優先日から22月のうちいずれか遅く満了する期限が経過するまでに、出願人は国際予備審査機関に、適当な場合は補正書とともに、答弁書を提出することができる。

さらなる選択肢は、様式PCT/ISA/220を参照すること。

3. さらなる詳細は、様式PCT/ISA/220の備考を参照すること。

見解書を作成した日

25.04.2005

名称及びあて先

日本国特許庁 (ISA/JP)
郵便番号100-8915
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特許庁審査官 (権限のある職員)

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4T

3386

様式PCT/ISA/237 (表紙) (2004年1月)

第I欄 見解の基礎

1. この見解書は、下記に示す場合を除くほか、国際出願の言語を基礎として作成された。

- ☐ この見解書は、_____語による翻訳文を基礎として作成した。
それは国際調査のために提出されたPCT規則12.3及び23.1(b)にいう翻訳文の言語である。

2. この国際出願で開示されかつ請求の範囲に係る発明に不可欠なヌクレオチド又はアミノ酸配列に関して、以下に基づき見解書を作成した。

- a. タイプ ☐ 配列表
☐ 配列表に関連するテーブル
- b. フォーマット ☐ 書面
☐ コンピュータ読み取り可能な形式
- c. 提出時期 ☐ 出願時の国際出願に含まれる
☐ この国際出願と共にコンピュータ読み取り可能な形式により提出された
☐ 出願後に、調査のために、この国際調査機関に提出された

3. ☐ さらに、配列表又は配列表に関連するテーブルを提出した場合に、出願後に提出した配列若しくは追加して提出した配列が出願時に提出した配列と同一である旨、又は、出願時の開示を超える事項を含まない旨の陳述書の提出があった。

4. 補足意見：

第V欄 新規性、進歩性又は産業上の利用可能性についてのPCT規則43の2.1(a)(i)に定める見解、それを裏付ける文献及び説明

1. 見解

| | | |
|----------------|------------|---|
| 新規性 (N) | 請求の範囲 1-10 | 有 |
| | 請求の範囲 | 無 |
| 進歩性 (IS) | 請求の範囲 | 有 |
| | 請求の範囲 1-10 | 無 |
| 産業上の利用可能性 (IA) | 請求の範囲 1-10 | 有 |
| | 請求の範囲 | 無 |

2. 文献及び説明

文献1 : JP 56-9368 A (三容真空工業株式会社) 1981.01.30, 請求項1, 2, 第1頁左欄第18行-同頁右欄第2行, 第2頁右上欄第20行-同頁右下欄第6行, 第2図

文献2 : JP 10-203848 A (東芝硝子株式会社) 1998.08.04, 段落【0002】, 【0004】

文献3 : JP 2000-185945 A (セントラル硝子株式会社) 2000.07.04, 請求項3, 4, 段落【0028】, 【0029】, 【0038】 - 【0042】, 図8, 9

文献4 : JP 2001-180983 A (セントラル硝子株式会社) 2001.07.03, 請求項1, 段落【0021】

文献5 : WO 97/00134 A1 (日本曹達株式会社) 1997.01.03, 請求項1, 3, 4, 9, 16, 第3頁第15-19行, 第10頁第11-20行, 第1図

請求の範囲1

請求の範囲1に係る発明は、国際調査報告で引用された文献1及び2により、進歩性を有しない。

文献1には、スパッタリングにより、ガラス容器の表面上に、 $\text{In}_2\text{O}_3-\text{SnO}_2$ 膜、Au、Pt等の貴金属膜、 $\text{In}_2\text{O}_3-\text{SnO}_2$ 膜を順次形成した装飾ガラス容器、すなわち、ガラス容器の表面に物質が異なる複数の蒸着膜からなる多層膜を備える着色ガラス容器が記載されている(請求項1, 2, 第1頁左欄第18行-同頁右欄第2行, 第2頁右上欄第20行-同頁右下欄第6行, 第2図)。

他方、文献2の段落【0002】及び【0004】に記載されているように、物理的蒸着により、高屈折率の薄膜と低屈折率の薄膜との多層膜をガラス表面に形成することにより、ガラス表面を着色する方法は周知の技術であり、この着色方法と本願請求項1に係る発明の多発色方法は同じであると認められるので、文献1に記載の当該着色ガラスは、多発色ガラスである。

してみると、ガラス容器に、文献2に記載の周知の着色方法を適用して、多発色ガラス容器とすることは、当業者にとって容易である。

補充欄

いずれかの欄の大きさが足りない場合

第 V.2 欄の続き

請求の範囲 2

請求の範囲 2 に係る発明は、文献 1 及び 2 により、進歩性を有しない。

高屈折率の薄膜及び低屈折率の薄膜の二種類の蒸着膜の屈折率の差をどの程度にするかは、発色する色調等を考慮して、当業者が適宜決定し得るものである。

請求の範囲 3, 4

請求の範囲 3, 4 に係る発明は、文献 1, 2 及び国際調査報告で引用された文献 3, 4 により、進歩性を有しない。

文献 3 には、透明ガラス基板上に TiO_2 と SiO_2 の 2 種類の膜を交互に形成することにより、防眩ガラスが得られる旨が記載されており（請求項 3, 4, 段落【0028】、【0029】、【0038】 - 【0042】、図 8, 9）、 TiO_2 と SiO_2 とは屈折率が異なるから、多発色ガラスとなっていると認められる。

また、文献 4 には、ガラス表面に SiO_2 の下層膜を形成し、その上に TiO_2 と SiO_2 とからなる上層膜を形成した親水膜被覆ガラスが記載されており（請求項 1）、ガラス表面に SiO_2 膜を形成することにより上層膜とガラスとの密着性を向上させることができる旨が記載されている（段落【0021】）。

してみると、文献 1 - 4 に係る発明は、ガラス表面に薄膜を形成する技術として共通するものであるから、ガラス容器の表面に TiO_2 と SiO_2 の 2 種類の膜を交互に形成し、ガラスと膜の密着性を向上させるために、ガラス容器の表面と TiO_2 膜との間に SiO_2 膜を設けることは、当業者にとって容易である。

請求の範囲 5

請求の範囲 5 に係る発明は、文献 1 - 4 により、進歩性を有しない。

文献 3 の実施例 3 - 5 には、厚さ 100 nm、102 nm、116 nm の TiO_2 膜、厚さ 82 nm、84 nm、95 nm の SiO_2 膜を用いる旨が記載されており（段落【0038】 - 【0042】）、複数の蒸着膜の厚さをどの程度にするかは、発色する色調、膜の耐久性等を考慮して、当業者が適宜決定し得るものである。

請求の範囲 6

請求の範囲 6 に係る発明は、文献 1 - 4 及び国際調査報告で引用された文献 5 により、進歩性を有しない。

文献 5 には、透明ガラス上に TiO_2 等の光触媒層を形成する場合に、ガラスと光触媒層との密着性を向上させるために、ポリシロキサン系の樹脂等を設ける旨が記載されている（請求項 1, 3, 4, 9, 16, 第 3 頁第 15-19 行、第 10 頁第 11-20 行、第 1 図）。

そして、文献 1 - 5 に係る発明は、ガラス表面に薄膜を形成する技術として共通するものであるから、ガラスと膜の密着性、多層膜間の密着性を向上させるために、ガラスと蒸着膜との間、蒸着膜相互間にポリシロキサン系塗膜を形成することは、当業者にとって容易である。

補充欄

いずれかの欄の大きさが足りない場合

第 V.2 欄の続き

請求の範囲 7

請求の範囲 7に係る発明は、文献 1 及び 2 により、進歩性を有しない。

文献 1 には、スパッタリングにより、ガラス容器の表面上に、 In_2O_3 - SnO_2 膜、 Au 、 Pt 等の貴金属膜、 In_2O_3 - SnO_2 膜を順次形成した装飾ガラス容器、すなわち、ガラス容器の表面に物質が異なる複数の蒸着膜からなる多層膜を備える着色ガラス容器が記載されている（請求項 1, 2, 第 1 頁左欄第 18 行-同頁右欄第 2 行, 第 2 頁右上欄第 20 行-同頁右下欄第 6 行, 第 2 図）。

他方、文献 2 の段落【0002】及び【0004】に記載されているように、物理的蒸着により、高屈折率の薄膜と低屈折率の薄膜との多層膜をガラス表面に形成することにより、ガラス表面を着色する方法は周知の技術であり、この着色方法と本願請求項 1 に係る発明の多発色の方法は同じであると認められるので、文献 1 に記載の当該着色ガラスは、多発色ガラスである。

してみると、ガラス容器を準備し、これに文献 2 に記載の周知の着色方法を適用して、多発色ガラス容器を製造することは、当業者にとって容易である。

請求の範囲 8

請求の範囲 8に係る発明は、文献 1 及び 2 により、進歩性を有しない。

高屈折率の薄膜及び低屈折率の薄膜の二種類の蒸着膜の屈折率の差をどの程度にするかは、発色する色調等を考慮して、当業者が適宜決定し得るものである。

請求の範囲 9

請求の範囲 9に係る発明は、文献 1, 2 及び 5 により、進歩性を有しない。

文献 5 には、透明ガラス上に TiO_2 等の光触媒層を形成する場合に、ガラスと光触媒層との密着性を向上させるために、ポリシロキサン系の樹脂等を設ける旨が記載されている（請求項 1, 3, 4, 9, 16, 第 3 頁第 15-19 行, 第 10 頁第 11-20 行, 第 1 図）。

そして、文献 1, 2 及び 5 に係る発明は、ガラス表面に薄膜を形成する技術として共通するものであるから、ガラスと膜の密着性、多層膜間の密着性を向上させるために、ガラスと蒸着膜との間、蒸着膜相互間にポリシロキサン系塗膜を形成することは、当業者にとって容易である。

請求の範囲 10

請求の範囲 10に係る発明は、文献 1, 2 及び 5 により、進歩性を有しない。

ガラスビン等のガラス表面が曲面である場合に、ガラス容器を回転させながら多層膜を形成して、曲面上に均一に蒸着膜を形成することは、当業者にとって容易である。